

REMARKS

I. The Claims Are Not Indefinite Under 35 U.S.C. § 112

A. The Examiner has rejected Claims 1-30 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Examiner asserts that “[t]he term ‘composition’ in the preamble of claims 1-30 is used by the claim to mean ‘composition’ while the accepted meaning is ‘laminate.’” Office Action, page 2. Applicants disagree, and respectfully submit that the Examiner mischaracterizes the claimed invention.

As explained in the specification at page 1, filled polymeric articles (e.g., solid surface materials) were invented as a superior alternative to laminates for uses such as, among others, kitchen and bathroom countertops. Laminate materials are created by applying a protective polymeric layer to a colored or patterned article, which is why they are both inexpensive and available in a virtually unlimited range of colors and styles. The main disadvantages of laminates are low resistance to scratches, cuts, bacteria, stains, and chemicals, and poor or nonexistent renewability. Solid surface materials, by virtue of their solidity, hardness, durability, renewability, fire resistance, and non-porous nature, sought to overcome the problems associated with laminates. The chief drawback of solid surfaces, and the problem addressed by the present invention, is that the same qualities that give them their superior strength and durability also make them highly resistant to impregnation by colorants.

The methods and compositions of the present invention do not involve laminates. Instead, they are concerned with filled polymeric articles such as solid surface materials. Moreover, Applicants respectfully submit that skilled artisans working in this field would readily and clearly draw a distinction between laminate articles and filled polymeric articles, for the reasons stated above. Applicants thus submit that the accepted meaning of “composition” is not “laminate,” and that the term “composition” is appropriately employed. The Examiner further states that “[t]he invention does not pertain to a composition, but rather an article of manufacture.” Office Action, page 2. Applicants respectfully disagree, and submit that the claimed invention pertains to compositions comprising a polymer component, an inorganic filler, and a fixed image with novel optical density characteristics.

B. The Examiner states that, “regarding claims 1-29, it is not clear as to if CORIAN®, GIBRALTAR®, FOUNTAINHEAD®, AVONITE®, or CERATA®, is added in addition to a filled polymeric material, or that it actually is the filled polymeric material,” and advises replacement of trademarked terms with generic descriptions. The Examiner also asserts that “[t]he term ‘filled’ in itself is unclear as it is an indefinite term and not defined in the specification.” Office Action, page 2. Applicants respectfully disagree with both assertions, and submit that support for the claims is provided in the Definitions section of the specification, at page 12, as follows:

As used herein, the term “filled polymeric article” refers to any material containing at least 5 percent of a polymer (e.g. polyacrylic or polyester), and at least 10 percent of an inorganic filler (e.g. alumina trihydrate). Examples of filled polymeric articles include, but are not limited to, products marketed under the tradenames CORIAN, FOUNTAINHEAD, and AVONITE.

Applicants believe that this definition makes adequately clear that the materials cited in the claims by reference to their trademarked names actually constitute the filled polymeric material, and are not an additive material. Furthermore, Applicants submit that the term “filled” is not indefinite in view of the definition of “filled polymeric article,” which describes a material with “an inorganic filler.” For the purposes of the present application, the term “filled” is used according to its ordinary meaning. In addition, Applicants submit that a skilled artisan in the field of solid surface materials would readily understand the meaning of the term “filled” as used in this application, based on the definition and other disclosure provided in the specification. However, in order to further the prosecution of the present invention, while not acquiescing to the Examiner’s arguments, Applicants have amended Claims 9-13, 24-28, and 30 to add the phrase “brand filled polymeric material” immediately following the trademarked term. Applicants reserve the right to prosecute the original claims (or similar claims) in the future.

C. The Examiner has rejected Claims 1, 15, and 29 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention, and alleges that “[i]t is not clear as to what property the optical density value is assigned to (see limitation, ‘within about 1.5 of a corresponding transfer image...’), or what ‘optical density’ means.” The Examiner further states

that “it is not clear if a transfer image is a further limitation, or just a description of a fixed image being transferred.” Office Action, page 3. Applicants respectfully disagree with these contentions, and submit that support for the claims is provided in the Definitions section of the specification, at page 13, as follows:

As used herein, the term “optical density” refers to reflected light intensity measurement that can be made, for example, by a densitometer.

As used herein, the term “corresponding transfer image” refers to the dye in the transfer medium that could be used (e.g. in heat transfer printing) to form a fixed image in a solid surface such a filled polymeric material. Generally, the corresponding transfer image when compared to a fixed image, is not the actual transfer image used to transfer the image into the solid surface (since the transfer image is “spent”), but instead is made by the same method as the actual transfer image used to form the fixed image (e.g. the same digital picture is printed out onto the same type of paper using the same printer, etc). The digital picture shown in Figure 1C is considered the corresponding transfer image of the digital picture of the fixed image shown in Figure 1B.

As used herein, the term “fixed image optical density value” is an optical density value obtained from a fixed image, or a digital picture of a fixed image. This value may be obtained, for example, by using a densitometer or a gray scale.

As used herein, the term “transfer image optical density value” is an optical density value obtained from a transfer image, or a digital picture of a transfer image. This value may be obtained, for example, by using a densitometer or a gray scale.

Applicants believe that the above definitions provide sufficient clarity. In addition, Applicants respectfully submit that a detailed explanation of the cited terms is provided in Part VI of the specification, at pages 28-30, including an example of how the values recited in Claims 1, 15, and 29 are measured and calculated.

The Examiner asserts that “the phrase ‘within about’ is a relative term which renders the claim indefinite.” Office Action, page 3. Applicants respectfully disagree. However, in order to further the prosecution of the present invention, while not acquiescing to the Examiner’s arguments, Applicants have amended Claims 1 and 2 to remove the word “about.” Applicants reserve the right to prosecute the original claims (or similar claims) in the future.

II. The Claims Are Not Anticipated Under 35 U.S.C. § 102

A. Claims 1 and 15 Are Not Anticipated Under 35 U.S.C. § 102(b)

The Examiner has rejected Claims 1 and 15 as allegedly anticipated by U.S. Patent No. 6,001,482 to Anderson *et al.* Office Action, page 3-4. The Federal Circuit has stated the relevant analysis for anticipation as follows:

A claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference.¹

Applicants respectfully submit that the reference cited by the Examiner does not teach each element of the Claims. In particular, Anderson *et al.* does not teach filled polymeric materials with “fixed images.”

As the Examiner states, “Anderson teaches an ink jet receptor element having a coating.” Office Action, page 4. The invention disclosed by Anderson *et al.* involves the lamination of a transparent protective layer to the surface of an ink jet image, for the purpose of increasing resistance to rain, sunlight, and other environmental contaminants. The principally contemplated use of the invention is to provide a protective coating for outdoor advertising devices such as billboards, banners, and displays. U.S. Patent No. 6,001,482, col. 1, ll. 41-47. The present invention, by contrast, involves the fixation of images with novel optical density characteristics *within* filled polymeric articles (which are typically opaque), for example, by means of heat transfer printing using sublimation dyes. The specification defines a fixed image, at page 13, as follows:

As used herein, the terms “fixed image” and “fixed image formed” in a material, refer to dye or ink that has been transferred into a solid surface (e.g. heat transferred into a filled polymeric material) and that changes the visual appearance of the solid surface (e.g. making it darker, or lighter, changes the color, adds a pattern or representation of an image). Also, a fixed image is an image that is not easily removed from the solid surface (e.g. cannot be removed with soap and water, and is resistant to extensive rubbing with steel wool or like material). Examples of digital photographs of fixed images are shown in Figure 1 and Figure 2.

The novelty, and indeed a primary purpose of the present invention, is the achievement of vivid, detailed colors and images fixed *within* the composition itself of a solid surface article, and *without* the requirement of a protective coating, as opposed to colors and images simply being

¹ *Verdegaal Bros. v. Union Oil of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

applied to the surface and covered with a protective laminate. As explained above, the difference between these methods is of great significance. Anderson *et al.* teaches a technology akin to that of laminates, which has no relationship whatsoever to the methods and compositions of the present invention. In addition, Anderson *et al.* contains no reference, either express or implied, to permit the generation of filled polymeric articles with the novel optical density characteristics of the present invention, and in fact provides no method at all for imparting an image in (versus on) solid surface materials (*i.e.*, no fixed image is taught).

The Examiner has taken the position that the particulate materials taught by Anderson *et al.* are equivalent to (a) of claim 1. For the reasons stated above, Applicants respectfully disagree. The Examiner further alleges that, “[w]hile the prior art does not teach the articles having an optical density value, it is an inherent property since the same materials are used.” Office Action, page 4. Again, for the reasons stated above, Applicants respectfully disagree. Although both inventions can employ polymers and inorganic fillers, the preparation and proportions of the materials differ dramatically, and are critical to the desired results. For example, solid surface materials typically utilize a high proportion by weight of the inorganic filler, which provides the strength, durability, and opacity of the materials. Prior to the present invention, however, no methods existed for printing colors and images with high optical density values into such filled compositions (as opposed to merely applying an image to the surface). Thus, the optical density of a polymer/inorganic filler material is not an inherent property of the composition, since the novel optical density characteristics of the present invention are the direct result of the present invention. Since the method of Anderson *et al.* does not produce a “fixed image,” it clearly cannot produce a fixed image with the recited optical densities (or any optical density, since Anderson *et al.* fails to provide a method for penetrating the durable solid surface material).

Applicants thus respectfully submit that, for the reasons stated above, the claims are not anticipated by Anderson *et al.*, and Applicants respectfully request that this rejection be withdrawn.

B. Claims 1-5 Are Not Anticipated Under 35 U.S.C. § 102(e)

The Examiner has rejected Claims 1-5 as allegedly anticipated by U.S. Patent No. 6,344,269 to Makar *et al.* Applicants respectfully submit that the reference cited by the

Examiner does not teach each element of the Claims. In particular, Makar *et al.* does not teach filled polymeric materials with fixed images.

Makar *et al.* teaches a heat-activated image transfer label intended for use in decorating untreated high-density polyethylene surfaces. The principally contemplated use of the invention is to provide an image transfer label for application to the outer surface of articles such as beverage containers and plastic bottles. U.S. Patent No. 6,344,269, col. 1, ll. 15-19. The Examiner contends that “Makar teaches it is known to provide a polymeric material with ink (a fixed image),” and refers to a description at col. 3, ll. 5-10 of a “heat-activatable adhesive layer comprising an acrylic resin, a chlorinated polyolefin and a plasticizer” printed on “the ink design layer.” Office Action, page 4. Applicants respectfully submit that the teachings of Makar *et al.* and the present invention are not equivalent.

To begin, the transfer label of Makar *et al.* and the filled polymeric composition with novel optical density characteristics of the present invention are fundamentally different. While the Examiner asserts that “Makar teaches using acrylic resins with ink images in print applications,” Applicants respectfully point out that, as with Anderson *et al.*, and unlike the present invention, Makar *et al.* involves the application of an ink image to the *surface* of a resin, which is a wholly different technique than that of the present invention. Office Action, page 4. An image applied merely to the outer surface of a filled polymeric article defeats the principal purpose of solid surface material, which is to provide a material with strength, durability, resistance to heat, stains, bacteria, and chemicals, and renewability via removal of a small portion of the outer layer (*e.g.*, by sanding). Because the compositions of the present application contain images fixed within the compositions themselves, all of the desirable properties of filled polymeric articles are retained. Applicant thus respectfully disputes the Examiner’s contention that “the use or the compositions of [the enumerated trademarked materials] are immaterial to patentability,” particularly since Makar *et al.* provides no viable method for generating a fixed image in filled polymeric material. Office Action, page 4.

Moreover, Makar *et al.* contains no reference, either express or implied, to the use of filled polymeric articles such as solid surface compositions, nor any reference to methods of generating such compositions, nor any reference to the achievement of the optical density values of fixed images achieved by the present invention. For the reasons stated above and in the discussion of Anderson *et al.*, Applicants respectfully submit that the optical density values

achieved by the present invention are not an inherent property of the constituent materials, and in fact serve to distinguish the present invention from the prior art.

Finally, the Examiner asserts that “Makar teaches a composition of polymeric materials for forming a lacquer layer comprises [sic] a polymeric component such as polyester or vinyl... and acrylic/PMMA ink such as ELVACITE®... ranging from 11-25 weight percent, meeting Applicants range of 15-80 of claims 3-5...” Office Action, page 5. Again, Applicants respectfully disagree. As discussed in the preceding paragraph, Makar *et al.* contains no teaching of filled polymeric materials, fixed images in such materials, or novel optical density characteristics, and involves an invention of a very different sort than the present invention. Indeed, a primary distinguishing characteristic of the compositions of the present invention is that they do not require protective elements such as a lacquer layer in order to retain images.

Applicants thus respectfully submit that, for the reasons stated above, the claims are not anticipated by Makar *et al.*, and Applicants respectfully request that this rejection be withdrawn.

III. The Claims Are Not Obvious Under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 1-9, 14-23, and 29-30 as allegedly being unpatentable over Makar *et al.* in view of U.S. Patent No. 6,203,911 to Weberg *et al.* Office Action, page 5. Applicants respectfully disagree. Under § 2143 of the Manual of Patent Examining Procedure (M.P.E.P), there are three criteria that must be met to provide a *prima facie* showing of obviousness. The first is that the prior art must teach or suggest all of the claim limitations. The second is a suggestion or motivation in the references or the knowledge generally available to combine the reference teachings. The third is a reasonable expectation of success should the combination be carried out. Failure to establish even one of these requirements means that the Examiner has failed to establish a *prima facie* case of obviousness. Applicants respectfully submit that the Examiner has failed to set forth a *prima facie* case of obviousness because these requirements have not been met.

A. There Is No Teaching Or Suggestion Of All Of The Claim Limitations

To establish a *prima facie* case of obviousness, the cited references must contain a teaching or suggestion of all of the claim limitations of the present invention. M.P.E.P. § 2143. Applicants respectfully submit that the Examiner could not show a teaching or suggestion of all

of the claim limitations, since every claim of the present invention requires a filled polymeric article containing a fixed image with certain optical density properties fixed therein, not merely applied to the surface as a label or decal. None of the cited art, alone or in combination, teaches or suggests a fixed image.

B. There Is No Motivation To Combine The References

To establish a *prima facie* case of obviousness, “there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference teachings.” M.P.E.P. § 2143.

The Examiner contends that “it would have been obvious to one of ordinary skill in the art to modify the heat-transfer label of Makar to include alumina trihydrate because the addition increases the strength of a molded article as taught by Weberg at col. 8, lines 1-2.” Office Action, page 5. Applicants respectfully disagree. The two references cited by the Examiner concern disparate products (ink transfer labels versus thermoset molding compositions) and disparate markets (commercial product labeling versus filled polymeric compositions for thermoforming). Moreover, as discussed above, it would not make sense (and certainly would not be obvious) to combine a surface decal with a solid surface article, because the advantages of solid surface over laminates would be greatly diminished; an image labeled only to the surface would be just as susceptible to scratches, cuts, burns, bacteria, stains, and chemicals as a laminate. One of the main factors that justify the extra cost of solid surface materials is that their beauty is more than skin-deep; a marred surface can be renewed via removal (*e.g.*, by sanding) because the composition is consistent throughout. In addition, Weberg *et al.* actually teaches away from both Makar *et al.* and the present invention by suggesting that the means of achieving aesthetic variety in filled polymeric articles is to incorporate “decorative fillers” such as “pigments and dyes; reflective flakes; metal particles; rocks; colored glass; colored sand of various sizes; wood products such as fibers, pellets and powders; and others.” U.S. Patent No. 6,203,911, col. 8, ll. 39-62. There is no reference in Weberg *et al.* to either the heat transfer labeling techniques of Makar *et al.*, or the methods of generating fixed images of the present invention. Applicants thus respectfully submit that no motivation exists to combine the teachings of Makar *et al.* and Weberg *et al.*

C. There Is No Reasonable Expectation Of Success

To establish a *prima facie* case of obviousness there must be a reasonable expectation of success should the prior art be combined. M.P.E.P. § 2143.02. Applicants respectfully submit that the Examiner could not show a reasonable expectation of success of combining the teachings of Makar *et al.* and Weberg *et al.* to yield the presently claimed invention. Even if a motivation to combine the two references did exist (which Applicants do not believe to be the case), the combination would not result in a filled polymeric article with an image having novel optical density characteristics fixed therein, but rather a filled polymeric article with a label affixed to the surface. For the reasons explained above, a surface-labeled article would be fundamentally different than an article with an image fixed to a significant depth within.

Moreover, Applicants submit that the claimed invention was discovered as the result of extensive experimentation (a selection of which is detailed in the specification at pages 30-33), and represents a substantial departure from the teachings of the prior art. Further evidence of the novelty and non-obviousness of the present invention lies in the fact that the incorporation of images and a vivid, wide variety of colors and patterns is a problem that the solid surface industry has been trying to solve, without success, for more than three decades. Attached at Tab A are three printed pages from the website of DuPont, the inventors of solid surface materials and purveyor of the industry's most popular brand, CORIAN®. The pages detail the history and progress of solid surface, and demonstrate that while expanding the pallet of colors and styles has become a priority for the industry, the 2001 global color pallet for CORIAN®, a product introduced in the 1960s, was about ninety colors (up from seventy-two in 1994). The lack of an effective method of generating filled polymeric materials with fixed images has clearly hindered expansion of the solid surface industry, which is currently limited to generating colors by incorporating colored particles into the inorganic filler during manufacture (as opposed to transfer of images by the methods of the present invention).

Applicants thus respectfully submit that none of the three criteria of M.P.E.P. § 2143 have been established, and thus, no motivation exists to combine the teachings of Makar *et al.* and Weberg *et al.* Applicants therefore respectfully request that this rejection be withdrawn.

Conclusion

All grounds of rejection of the Office Action mailed November 21, 2002 have been addressed and reconsideration of the application is respectfully requested. It is respectfully submitted that Applicants' claims as amended should be passed into allowance. Should the Examiner believe that a telephone interview would aid in the prosecution of this application, Applicants encourage the Examiner to call the undersigned collect at (608) 218-6900.

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